

## **Claims**

1. (Currently Amended) A method of operating a device for treating sleep disordered breathing (SDB) during successive treatment sessions, wherein said device provides continuous positive airway pressure during sleep, the method comprising the steps of:
  - applying a constant treatment pressure during a first session;
  - deriving a sleep disorder index (SDI) representative of the number of SDB episodes that occurred during said first session;
  - determining if said treatment pressure should be increased based upon the derived SDI; and
  - increasing said treatment pressure during a second, subsequent session if it was determined during said first session that said treatment pressure should be increased, each of said first and second sessions occurring during a different night.
2. (Original) The method of claim 1 wherein said SDI is an apnea hypopnea index (AHI) that represents the number of apnea and hypopnea events during said first session.
3. (Original) The method of claim 2 wherein an AHI event is determined when a short term moving average of ventilation drops below a selected percentage of a long term average for a minimum period of time.
4. (Original) The method of claim 3 wherein a hypopnea event is determined when said short term average drops between a first and a second percentage of said long term average for a minimum period of time.
5. (Original) The method of claim 2 wherein if said AHI is less than a minimum number, then said treatment pressure is lowered in a subsequent session.
6. (Original) The method of claim 5 wherein the rate of increase in treatment pressure over successive sessions is greater than the rate of decrease in said treatment pressure over successive sessions.

7. (Original) The method of claim 2 wherein if said AHI is greater than a minimum number, then said treatment pressure is increased in a subsequent session.
8. (Original) The method of claim 2 wherein said treatment pressure is increased in a subsequent session by an amount that is a function of the magnitude of the derived AHI.
9. (Original) The method of claim 2 wherein said treatment pressure is increased only if said AHI was greater than a minimum number and said treatment pressure is less than a maximum value.
10. (Original) The method of claim 1 wherein an SDI event is determined when a short term moving average of ventilation drops below a selected percentage of a long term average for a minimum period of time.
11. (Original) The method of claim 1 wherein if said SDI is less than a minimum number, then said treatment pressure is lowered in a subsequent session.
12. (Original) The method of claim 11 wherein the rate of increase in treatment pressure over successive sessions is greater than the rate of decrease in said treatment pressure over successive sessions.
13. (Original) The method of claim 1 wherein if said SDI is greater than a minimum number, then said treatment pressure is increased in a subsequent session.
14. (Original) The method of claim 1 wherein said treatment pressure is increased in a subsequent session by an amount that is a function of the magnitude of the derived SDI.
15. (Original) The method of claim 1 wherein said treatment pressure is increased only if said SDI was greater than a minimum number and said treatment pressure is less than a maximum value.

16. (Currently Amended) A system for treating sleep disordered breathing (SDB) during successive treatment sessions, wherein the system provides continuous positive airway pressure during sleep, the system comprising:

a blower and a blower controller;

a mask for communicating pressurized air between said blower and a patient;

and

sensors for communicating signals indicative of pressure and flow to said controller, wherein said controller:

controls a constant treatment pressure to be applied during a first session;

derives a sleep disorder index (SDI) representative of the number of SDB episodes that occurred during said first session;

determines if an increase in treatment pressure is required based upon said derived SDI; and

controls an increase in said treatment pressure during a second, subsequent session if it was determined that an increase is required,

each of said first and second sessions occurring during a different night.

17. (Original) The system of claim 16 wherein said SDI is an apnea hypopnea index (AHI) that represents the number of apnea and hypopnea events that occurred during said first session.

18. (Original) The system of claim 17 wherein said controller determines an apnea event when a short term moving average of ventilation drops below a long term moving average of ventilation for a minimum period of time.

19. (Original) The system of claim 17 wherein said controller determines a hypopnea event when said short term average drops between a first and a second percentage of said long term average for a minimum period of time.

20. (Original) The system of claim 17 wherein if said controller determines that said AHI is less than a minimum number, then said treatment pressure is lowered in said subsequent session.

21. (Original) The system of claim 20 wherein a rate of increase of treatment pressure in successive sessions is greater than a rate of decrease of pressure in successive sessions.
22. (Original) The system of claim 17 wherein if said AHI was less than a minimum number, then said controller maintains said treatment pressure in said subsequent session.
23. (Original) The system of claim 17 wherein if said AHI was greater than a minimum number, then said controller increases said treatment pressure in said subsequent session.
24. (Original) The system of claim 17 wherein said controller increases said treatment pressure in said subsequent session by an amount that is a function of the magnitude of said derived AHI.
25. (Original) The system of claim 17 wherein said controller increases said treatment pressure only if said AHI was greater than a minimum number and said treatment pressure was less than a maximum pressure.
26. (Original) The system of claim 16 wherein said controller determines an SDI event when a short term moving average of ventilation drops below a long term moving average of ventilation for a minimum period of time.
27. (Original) The system of claim 16 wherein if said controller determines that said SDI is less than a minimum number, then said treatment pressure is lowered in said subsequent session.
28. (Original) The system of claim 27 wherein a rate of increase of treatment pressure in successive sessions is greater than a rate of decrease of pressure in successive sessions.

29. (Original d) The system of claim 16 wherein if said SDI was less than a minimum number, then said controller maintains said treatment pressure in said subsequent session.
30. (Original) The system of claim 16 wherein if said SDI was greater than a minimum number, then said controller increases said treatment pressure in said subsequent session.
31. (Original) The system of claim 16 wherein said controller increases said treatment pressure in said subsequent session by an amount that is a function of the magnitude of said derived SDI.
32. (Original) The system of claim 16 wherein said controller increases said treatment pressure only if said SDI was greater than a minimum number and said treatment pressure was less than a maximum pressure.
33. (New) A system for treating sleep disordered breathing (SDB) during successive treatment sessions, wherein the system provides continuous positive airway pressure during sleep, the system comprising:
- a blower and a blower controller;
  - a mask for communicating pressurized air between said blower and a patient;
  - and
  - sensors for communicating signals indicative of pressure and flow to said controller, wherein said controller:
    - controls a constant treatment pressure to be applied during a first session;
    - derives a sleep disorder index (SDI) representative of the number of SDB episodes that occurred during said first session;
    - determines if an increase in treatment pressure is required based upon said derived SDI; and
    - controls an increase in said treatment pressure during a second, subsequent session if it was determined that an increase is required,

said first and second sessions being separate in that said blower is turned off between the sessions.

34. (New) The system of claim 33 wherein said SDI is an apnea hypopnea index (AHI) that represents the number of apnea and hypopnea events that occurred during said first session.

35. (New) The system of claim 34 wherein said controller determines an apnea event when a short term moving average of ventilation drops below a long term moving average of ventilation for a minimum period of time.

36. (New) The system of claim 34 wherein said controller determines a hypopnea event when said short term average drops between a first and a second percentage of said long term average for a minimum period of time.

37. (New) The system of claim 34 wherein if said controller determines that said AHI is less than a minimum number, then said treatment pressure is lowered in said subsequent session.

38. (New) The system of claim 37 wherein a rate of increase of treatment pressure in successive sessions is greater than a rate of decrease of pressure in successive sessions.

39. (New) The system of claim 34 wherein if said AHI was less than a minimum number, then said controller maintains said treatment pressure in said subsequent session.

40. (New) The system of claim 34 wherein if said AHI was greater than a minimum number, then said controller increases said treatment pressure in said subsequent session.

41. (New) The system of claim 34 wherein said controller increases said treatment pressure in said subsequent session by an amount that is a function of the magnitude of said derived AHI.

42. (New) The system of claim 34 wherein said controller increases said treatment pressure only if said AHI was greater than a minimum number and said treatment pressure was less than a maximum pressure.
43. (New) The system of claim 33 wherein said controller determines an SDI event when a short term moving average of ventilation drops below a long term moving average of ventilation for a minimum period of time.
44. (New) The system of claim 33 wherein if said controller determines that said SDI is less than a minimum number, then said treatment pressure is lowered in said subsequent session.
45. (New) The system of claim 44 wherein a rate of increase of treatment pressure in successive sessions is greater than a rate of decrease of pressure in successive sessions.
46. (New) The system of claim 33 wherein if said SDI was less than a minimum number, then said controller maintains said treatment pressure in said subsequent session.
47. (New) The system of claim 33 wherein if said SDI was greater than a minimum number, then said controller increases said treatment pressure in said subsequent session.
48. (New) The system of claim 33 wherein said controller increases said treatment pressure in said subsequent session by an amount that is a function of the magnitude of said derived SDI.
49. (New) The system of claim 33 wherein said controller increases said treatment pressure only if said SDI was greater than a minimum number and said treatment pressure was less than a maximum pressure.